

## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>LA0050</b>	<b>FOR FURTHER ACTION</b> see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. <b>PCT/US 01/ 07151</b>	International filing date (day/month/year) <b>05/03/2001</b>	(Earliest) Priority Date (day/month/year) <b>10/03/2000</b>
Applicant <b>BRISTOL-MYERS SQUIBB CO.</b>		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 5 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

## 1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☒ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☐ the text is approved as submitted by the applicant.

☒ the text has been established by this Authority to read as follows:

**CYCLOPROPYL-FUSED PYRROLIDINE-BASED INHIBITORS OF DIPEPTIDYL IV, PROCESSES FOR THEIR PREPARATION, AND THEIR USE**

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☐ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

☐ None of the figures.

# INTERNATIONAL SEARCH REPORT

International Application No.

PCT/US 01/07151

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C07D209/52 A61K31/403 A61P3/04 A61P3/06 A61P3/10

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C07D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, CHEM ABS Data

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6 011 155 A (VILLHAUER EDWIN BERNARD) 4 January 2000 (2000-01-04) abstract; claims; examples ---	1-7, 11, 23, 24
Y	WO 99 47545 A (WANNAMAKER MARION W; BEMIS GUY W (US); MURCKO MARK A (US); VERTEX) 23 September 1999 (1999-09-23) page 9, formula I; page 26, especially lines 18-22; page 97, compounds 23d, 23h claims 1,6,18,19,23 ---	1-7, 11, 23, 24
A	WO 99 67279 A (SCHMIDT JOERN; GLUND KONRAD (DE); DEMUTH HANS ULRICH (DE); HOFFMAN) 29 December 1999 (1999-12-29) page 11 -page 17; claims 1,2,8-13 --- -/--	1, 11-13, 22-24

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

### \* Special categories of cited documents :

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*G\* document member of the same patent family

Date of the actual completion of the international search

16 October 2001

Date of mailing of the international search report

23/10/2001

Name and mailing address of the ISA

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Authorized officer

Hass, C

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4 379 785 A (WEYER RUDI ET AL) 12 April 1983 (1983-04-12) cited in the application claims 1,5,6 ---	1,11,23, 24
A	EP 0 219 782 A (HOECHST AG) 29 April 1987 (1987-04-29) page 1, formula (I); page 3, substructure K; page 16, line 33 to page 17, line 6 claims 1,2 ---	1,11,23
A	DE 33 24 263 A (HOECHST AG) 17 January 1985 (1985-01-17) claims 1,19,20 ---	1,11
A	DE 39 26 606 A (HOECHST AG) 14 February 1991 (1991-02-14) page 2, formula (I); page 3, substructure (K); page 6, lines 62-66 ---	1
A	US 4 254 057 A (DAY JANET A ET AL) 3 March 1981 (1981-03-03) column 2, line 26 - line 38 ---	1
A	EP 0 007 652 A (SHELL INT RESEARCH) 6 February 1980 (1980-02-06) claim 1 ---	1
A	HANESSIAN S ET AL: "Probing the Importance of Spacial and Conformational Domains in Captopril Analogs for Angiotensin Converting Enzyme Activity" BIOORGANIC & MEDICINAL CHEMISTRY LETTERS, OXFORD, GB, vol. 8, no. 16, 18 August 1998 (1998-08-18), pages 2123-2128, XP004137231 ISSN: 0960-894X the whole document ---	1
A	TVEREZOVSKY V V ET AL: "Synthesis of (2S, 3R, 4S)-3,4-Methanoproline and Analogues by Cyclopropylidene Insertion" TETRAHEDRON, ELSEVIER SCIENCE PUBLISHERS, AMSTERDAM, NL, vol. 53, no. 43, 27 October 1997 (1997-10-27), pages 14773-14792, XP004106307 ISSN: 0040-4020 the whole document ---	1
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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	SAGNARD I ET AL: "Enantioselective Synthesis of Cyclopropane alpha-Amino Acids: Synthesis of N-Boc-cis-(2S,3R,4S)-3,4-Methanoproline and N-Boc-(2S,3R,4S)-3,4-Methanoglutamic Acid" TETRAHEDRON LETTERS, ELSEVIER SCIENCE PUBLISHERS, AMSTERDAM, NL, vol. 36, no. 18, 1 May 1995 (1995-05-01), pages 3149-3152, XP004028212 ISSN: 0040-4039 the whole document ---	1
A	WO 99 26659 A (HOOVER DENNIS JAY; TREADWAY JUDITH LEE (US); HULIN BERNARD (US); P) 3 June 1999 (1999-06-03) cited in the application claims 1,6,7 ---	12-14, 22-24
A	US 5 998 463 A (HULIN BERNARD ET AL) 7 December 1999 (1999-12-07) cited in the application claims 1,22,23 -----	12-14, 22,23

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US 01/07151

## Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:  
  
Although claims 23, 24 are directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

### Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 01/07151

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 6011155	A	04-01-2000	US 6124305 A	26-09-2000
WO 9947545	A	23-09-1999	AU 3098699 A	11-10-1999
			BG 104863 A	30-04-2001
			BR 9909660 A	21-11-2000
			EP 1064298 A2	03-01-2001
			NO 20004546 A	09-11-2000
			PL 343611 A1	27-08-2001
			WO 9947545 A2	23-09-1999
WO 9967279	A	29-12-1999	DE 19828114 A1	27-01-2000
			AU 4777299 A	10-01-2000
			BR 9911415 A	20-03-2001
			CN 1306541 T	01-08-2001
			WO 9967279 A1	29-12-1999
			EP 1090030 A1	11-04-2001
			NO 20006483 A	19-12-2000
			US 2001020006 A1	06-09-2001
US 4379785	A	12-04-1983	DE 2951135 A1	25-06-1981
			AR 231131 A1	28-09-1984
			AR 230989 A1	31-08-1984
			AR 240922 A1	27-03-1991
			AT 6934 T	15-04-1984
			AU 538129 B2	02-08-1984
			AU 6552380 A	25-06-1981
			CA 1167033 A1	08-05-1984
			DE 3067390 D1	10-05-1984
			DK 540280 A ,B,	20-06-1981
			EP 0031058 A1	01-07-1981
			ES 497661 D0	01-11-1981
			ES 8200665 A1	01-02-1982
			ES 498224 D0	01-02-1982
			ES 8202541 A1	01-05-1982
			ES 498225 D0	01-03-1982
			ES 8202798 A1	16-05-1982
			ES 498226 D0	01-03-1982
			ES 8202799 A1	16-05-1982
			ES 498227 D0	01-02-1982
			ES 8202542 A1	01-05-1982
			ES 498228 D0	01-02-1982
			ES 8202543 A1	01-05-1982
			FI 803937 A ,B,	20-06-1981
			GR 72534 A1	17-11-1983
			HU 184943 B	28-11-1984
			IE 50635 B1	28-05-1986
			IL 61733 A	31-05-1985
			JP 1039424 B	21-08-1989
			JP 1554161 C	04-04-1990
			JP 56108762 A	28-08-1981
			LU 90244 A9	20-07-1998
			MX 8254 A	01-04-1993
			MX 174496 B	19-05-1994
			MX 8352 A	01-11-1993
			MX 6926 E	01-12-1986
			NO 803855 A ,B,	22-06-1981
			PT 72226 A ,B	01-01-1981
			ZA 8007911 A	30-12-1981

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 01/07151

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
EP 0219782	A	29-04-1987	DE	3536687 A1	16-04-1987
			AT	95064 T	15-10-1993
			AU	594711 B2	15-03-1990
			AU	6389086 A	16-04-1987
			CA	1320904 A1	03-08-1993
			DE	3689099 D1	04-11-1993
			DK	490486 A	16-04-1987
			EP	0219782 A2	29-04-1987
			ES	2059301 T3	16-11-1994
			IE	60767 B	10-08-1994
			JP	62087524 A	22-04-1987
			KR	9308094 B1	25-08-1993
			PT	83535 A ,B	01-11-1986
			US	5231080 A	27-07-1993
			ZA	8607771 A	27-05-1987
<hr/>					
DE 3324263	A	17-01-1985	DE	3324263 A1	17-01-1985
			AT	53203 T	15-06-1990
			AU	573227 B2	02-06-1988
			AU	3029884 A	10-01-1985
			CA	1263000 A1	14-11-1989
			CA	1267902 A2	17-04-1990
			DE	3482385 D1	05-07-1990
			DK	330284 A	07-01-1985
			EP	0131226 A2	16-01-1985
			ES	534001 D0	16-04-1985
			ES	8504705 A1	16-07-1985
			ES	535452 D0	16-05-1985
			ES	8505341 A1	01-09-1985
			ES	535453 D0	16-05-1985
			ES	8505342 A1	01-09-1985
			FI	842691 A	07-01-1985
			GR	82242 A1	13-12-1984
			HU	209413 B	30-05-1994
			HU	39160 A2	28-08-1986
			JP	1985439 C	25-10-1995
			JP	7010879 B	08-02-1995
			JP	60051199 A	22-03-1985
			KR	9107884 B1	04-10-1991
			PT	78848 A ,B	01-08-1984
			US	4591598 A	27-05-1986
			ZA	8405160 A	27-02-1985
<hr/>					
DE 3926606	A	14-02-1991	DE	3926606 A1	14-02-1991
			AT	94409 T	15-10-1993
			AU	631914 B2	10-12-1992
			AU	6092090 A	14-02-1991
			CA	2023089 A1	12-02-1991
			CS	9003958 A3	12-08-1992
			DD	297063 A5	02-01-1992
			DE	59002721 D1	21-10-1993
			DK	417473 T3	13-12-1993
			EP	0417473 A1	20-03-1991
			ES	2059931 T3	16-11-1994
			HU	54504 A2	28-03-1991
			IE	902910 A1	27-02-1991
			IL	95327 A	31-10-1995
			JP	3083957 A	09-04-1991

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 01/07151

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 3926606	A	KR 185969 B1 NO 903532 A NZ 234836 A PL 286442 A1 PT 94957 A ,B US 5231083 A ZA 9006327 A	01-05-1999 12-02-1991 26-05-1997 09-03-1992 22-05-1991 27-07-1993 29-05-1991
US 4254057	A	03-03-1981 AU 522785 B2 AU 4835079 A BR 7903987 A CA 1117127 A1 DE 2962088 D1 DK 266679 A EP 0007652 A1 ES 481872 A1 JP 55007278 A US 4255334 A US 4279821 A ZA 7903152 A	24-06-1982 03-01-1980 11-03-1980 26-01-1982 18-03-1982 28-12-1979 06-02-1980 01-03-1980 19-01-1980 10-03-1981 21-07-1981 25-06-1980
EP 0007652	A	06-02-1980 AU 522785 B2 AU 4835079 A BR 7903987 A CA 1117127 A1 DE 2962088 D1 DK 266679 A EP 0007652 A1 ES 481872 A1 JP 55007278 A US 4255334 A US 4254057 A US 4279821 A ZA 7903152 A	24-06-1982 03-01-1980 11-03-1980 26-01-1982 18-03-1982 28-12-1979 06-02-1980 01-03-1980 19-01-1980 10-03-1981 03-03-1981 21-07-1981 25-06-1980
WO 9926659	A	03-06-1999 AP 911 A AT 205403 T AU 733304 B2 AU 9555898 A BG 104435 A BR 9814698 A CN 1279617 T EP 1032424 A1 HR 20000327 A1 HU 0100272 A2 WO 9926659 A1 NO 20002164 A PL 340643 A1	07-12-2000 15-09-2001 10-05-2001 15-06-1999 31-01-2001 03-10-2000 10-01-2001 06-09-2000 28-02-2001 28-06-2001 03-06-1999 19-07-2000 12-02-2001
US 5998463	A	07-12-1999 NONE	